

**Amendments to the Claims:**

This listing of claims will replace all prior versions, and listings, of claims in the application:

**Listing of Claims:**

1. (currently amended) An apparatus for controlling compensation of dispersion for compensating for waveform degradation of optical signal caused by characteristic of wavelength dispersion on an optical transmission path, comprising:

a variable compensator of dispersion for compensating for waveform degradation of said optical signal;

a monitoring circuit for generating a quality information of transmission path of the optical signal which has been compensated for the waveform degradation by the variable compensator of dispersion; and

a controlling circuit for controlling an amount of dispersion compensation in the variable compensator of dispersion, based on the quality information of transmission path generated by the monitoring circuit, so as to become a quality of transmission path to a best value, the controlling circuit for sweeping across a variable range of the amount of dispersion compensation in the variable compensator of dispersion, to thereby determine the quality of transmission path, the controlling circuit for setting the amount of the dispersion compensation corresponding to the best value of the quality of transmission path as a value of initial setting in the variable compensator of dispersion[[]] ; and

the controlling circuit for selecting one control of either a control for setting a center value in a range of the amount of dispersion compensation when the quality of

transmission path becomes higher than a preset threshold as a value of initial setting in the variable compensator of dispersion, or a control for setting a minimum value when the quality of transmission path becomes lower than a preset threshold as a value of initial setting in the variable compensator of dispersion.

2. (canceled)

3. (currently amended) [[A]] An apparatus for controlling compensation of dispersion according to claim 1-~~or~~2,

wherein the quality of transmission path is adopted a bit error rate.

4. (currently amended) [[A]] An apparatus for controlling compensation of dispersion according to claim 3,

wherein the controlling circuit sweeps across the variable range of the amount the dispersion compensation in the variable compensator of dispersion, to thereby execute a detection of synchronization and/or a calculation of bit error rate, and skips through a designated step on the sweeping, to thereby find the value of initial setting when the synchronization is not detected.

5. (original) An apparatus for controlling compensation of dispersion according to claim 1,

wherein the controlling circuit sets initially a first threshold and a second threshold that is lower quality of transmission path than the first threshold on the quality of transmission path, the controlling circuit sweeps across a variable range of the amount of dispersion compensation in the variable compensator of dispersion when the quality of transmission path becomes lower than the first threshold, to thereby re-set an amount of dispersion compensation corresponding to a best value of the quality of transmission path in the variable compensator of dispersion.

6. (currently amended) An apparatus for controlling compensation of dispersion according to claim [[2]] 1,

wherein the controlling circuit sets initially a first threshold and a second threshold that is lower quality of transmission path than the first threshold on the quality of transmission path, the controlling circuit sweeps across a variable range of the amount of the dispersion compensation in the variable compensator of dispersion when the quality of transmission path becomes lower than the first threshold, to thereby re-set a center value in a range of the amount of dispersion compensation when the quality of transmission path becomes higher than the second threshold in the variable compensator of dispersion.

7. (currently amended) A method for controlling compensation of dispersion for compensating for waveform degradation of optical signal caused by characteristic of wavelength dispersion on an optical transmission path, comprising the steps of:

compensating a wavelength dispersion of the optical signal which has been degraded waveform by a variable compensator of dispersion;

determining a quality of transmission path based on a quality information of transmission path of an optical signal which has been compensated for the wavelength degradation;

controlling the amount of dispersion compensation in the variable compensator of dispersion, so as to become the quality of transmission path to a best value;

at initial setting,

sweeping across the variable range of the amount of dispersion compensation in the variable compensator of dispersion, to thereby determine the quality of transmission path; and

setting the amount of dispersion compensation corresponding to the best value of the quality of transmission path as a value of initial setting in the variable compensator of dispersion[[.]] ; by setting a center value in a range of the amount of dispersion compensation when the quality of transmission path becomes higher than a preset threshold as a value of initial setting in the variable compensator of dispersion, or by setting a minimum value when the quality of transmission path becomes lower than a preset threshold as a value of initial setting in the variable compensator of dispersion.

8. (canceled)

9. (currently amended) A method for controlling compensation of dispersion according to claim 7-~~or~~ 8,

wherein the quality of transmission path is adopted a bit error rate.

10. (original) A method for controlling compensation of dispersion according to claim 9, the method for controlling compensation of dispersion further comprising the steps of:

at initial setting,

sweeping across the variable range of the amount of dispersion compensation in the variable compensator of dispersion, to thereby execute a determination of a bit error rate and a detection of synchronization; and

skipping through designated steps on the sweeping, to thereby determine the bit error rate when the synchronization is not detected.

11. (original) A method for controlling compensation of dispersion according to claim 10, the method for controlling compensation of dispersion further comprising the steps of:

at initial setting,

sweeping across the variable range of the amount of dispersion compensation in the variable compensator of dispersion, to thereby execute the determination of the bit error rate and a detection of synchronization that detects under conditions of loss of frame, out of frame, and the bit error rate below a designated bit error rate.

12. (original) A method for controlling compensation of dispersion according to claim 7, the method for controlling compensation of dispersion further comprising the steps of:

setting initially a first threshold and the second threshold that is lower quality of transmission path than the first threshold on the quality of transmission path;

sweeping across a variable range of the amount of dispersion compensation in the variable compensator of dispersion when the quality of transmission path becomes lower than the first threshold, to thereby re-set an amount of dispersion compensation corresponding to a best value of the quality of transmission path in the variable compensator of dispersion.

13. (currently amended) A method for controlling compensation of dispersion according to claim [[8]] 7, the method for controlling compensation of dispersion further comprising the steps of:

setting initially a first threshold and the second threshold that is lower quality of transmission path than the first threshold on the quality of transmission path;

sweeping across a variable range of the amount of dispersion compensation in the variable compensator of dispersion when the quality of transmission path becomes lower than the first threshold, to thereby re-set a center value in a range of the amount of dispersion compensation when the quality of transmission path becomes higher than the second threshold in the variable compensator of dispersion.